



**CITY OF HAYWARD**  
**AGENDA REPORT**

AGENDA DATE 01/27/04

AGENDA ITEM 2

WORK SESSION ITEM \_\_\_\_\_

**TO:** Mayor and City Council

**FROM:** Director of Public Works

**SUBJECT:** Authorization for Increase in Additional Professional Services with Brown and Caldwell for Design of the Phase I Water Pollution Control Improvement Project

**RECOMMENDATION:**

It is recommended that the City Council approve the attached resolution that provides for an amendment of the Design Services Agreement with Brown and Caldwell by increasing the contract amount to \$4,626,000.

**DISCUSSION:**

At the January 13, 2004 work session, staff provided the City Council with an update on the progress of the Phase I improvements to the Water Pollution Control Facility. As part of that report, Council was informed of the project's substantial expansion, and staff's need to request authorization for additional funds for the project design, engineering services during construction, and preparation of an operations manual. A copy of the work session report is attached.

This report will briefly recap the circumstances that led to this request for additional funds. In January 2002, the City entered into an agreement with Brown and Caldwell to prepare plans, specifications and estimates for Phase I improvements. Based on their conceptual understanding of the project, the firm estimated that the cost for this work would be \$3.4 million, including \$400,000 for additional services. However, as the complexity of the project became more fully known, additional consultant effort was needed to satisfactorily complete the plans and specifications. Factors that contributed to the complexity include:

- 1) Integration of existing and new treatment processes;
- 2) Upgrades in the electrical system needed to serve the facility and provide sufficient backup power;
- 3) Changes in the scope of the project as staff reviewed and clarified facility needs;
- 4) Revision of the project from a two-phase to a one-phase effort as it became apparent that construction cost efficiencies could be realized from such a change.

One measure of effort in a design project is the number of drawing sheets that are produced. The final set of plans for the WPCF Improvement project includes close to 500 sheets, as compared to the 300 sheets that were estimated when the design proposal was prepared. The additional sheets were needed to address the issues and accommodate the changes that arose as the project progressed through the design phase.

The City has held extensive discussions with Brown and Caldwell to determine fair and reasonable compensation for the additional effort. The consultant documented and requested payment of \$1,742,500 above the original contract amount. Staff believes that most, but not all, of the proposed additional costs are justified. After several meetings with Brown and Caldwell senior management, staff agreed that \$1,226,000 of the requested amount is warranted to be approved. Therefore, staff recommends that the not-to-exceed amount of the agreement be increased by \$1,226,000 to a total of \$4,626,000. This increase includes funds for additional services during construction and preparation of an operations manual.

**Funding:**

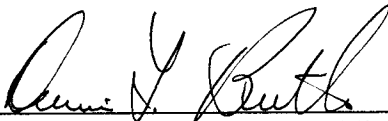
Sufficient funds are available for appropriation in the Sewer Improvement Fund.

Prepared by:



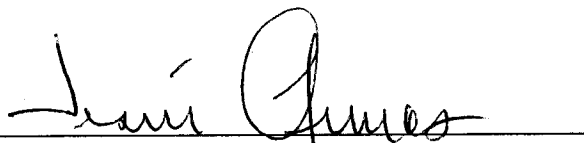
Alex Ameri, Deputy Director of Public Works/Utilities

Recommended by:



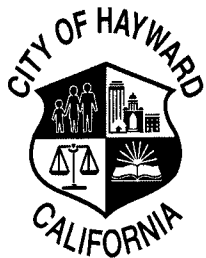
Dennis L. Butler, Director of Public Works

Approved by:



Jesús Armas, City Manager

Attachment: January 27, 2004, WS #3 – Update on Water Pollution Control Facility Improvement Project, Phase I



## **CITY OF HAYWARD**

### **AGENDA REPORT**

AGENDA DATE 01/13/04  
AGENDA ITEM \_\_\_\_\_  
WORK SESSION ITEM WS #3

**TO:** Mayor and City Council  
**FROM:** Director of Public Works  
**SUBJECT:** Update on Water Pollution Control Facility Improvement Project, Phase I

#### **RECOMMENDATION:**

It is recommended that the City Council review and comment on this report.

#### **DISCUSSION:**

The purpose of this report is to provide the City Council with an update on the improvements to the Water Pollution Control Facility, particularly changes that have occurred in the financing of this project.

A comprehensive evaluation of the Water Pollution Control Facility (WPCF) processes in 2001 confirmed that existing facilities are incapable of providing complete and reliable wastewater treatment at projected future flows and loads. The WPCF Master Plan included recommendations for a substantial rehabilitation of the WPCF and construction of new process units to improve both its performance and reliability. In January 2002, the City entered into an agreement with Brown and Caldwell Environmental Engineering and Consulting to design Phase I improvements.

The design is now at the 95 percent completion level and is undergoing staff review. Staff anticipates that a construction contract will be awarded in July 2004, with construction beginning in September 2004. As noted in the July 8, 2003 agenda report, construction of the WPCF improvements is expected to cost about \$32.5 million. Costs for design, construction management, development of an operations manual, and project administration are anticipated to bring the total cost of the project to just over \$39 million.

#### **Project Financing:**

The City Council will recall that staff recommended pursuing a local match loan from the State Revolving Fund (SRF) for Construction of Wastewater Facilities. The SRF was created to make low-interest loans available to public entities for construction and retrofit of wastewater treatment facilities. Staff was informed that such a loan could be obtained to help finance Phase I improvements, including design, construction, and services during construction, at a lower rate for borrowing than would be available through conventional sources. The principle advantage

would be that the total cost of borrowing, including interest, was less than open market municipal bond financing. In fact, the SRF had a cost comparable to a less than two percent interest rate, compared with the five percent range for open market financing. Thus, on January 14, 2003, the City Council authorized staff to proceed with securing an SRF loan for an amount not to exceed \$33 million.

The State Water Resources Control Board (SWRCCB) had two requirements for an SRF loan beyond those necessary for conventional financing. Because the SRF includes federal contributions, the CEQA process had to be supplemented with additional requirements mandated by federal regulations. Further, the SRF required that value engineering (VE) analyses be employed during the design phase. Both of these requirements were satisfactorily addressed, and the City prepared and submitted an application for a SRF loan in a timely way. Staff continued to work with the State to provide additional information and clarify the plant needs to ensure a fair evaluation of the application and a favorable outcome. Staff was assured on more than one occasion that the application met the requirements for a SRF loan and that a "letter of preliminary loan commitment" would be issued any day.

On September 8, 2003, the City was informed, along with many other municipalities and agencies, including Oro Loma Sanitary District, that the State had "overcommitted" loan funds and that funding requests for all projects statewide would not be further processed as the SRF had essentially run out of money. Subsequent conversations with State staff have confirmed that the SRF loan program is on hold indefinitely. There is a possibility that the SRF will be funded in the future; however, given the well known uncertainties in the State financial situation, it would be imprudent to depend on such financing, at least in the foreseeable future.

In view of the above, staff explored the possibility of dividing the project into two phases, primarily in hopes of getting a SRF loan for the future second phase. After review, however, staff concluded that such phasing would not be desirable for the following reasons: 1) SWRCB staff has changed their position and indicated that, contrary to their earlier assertions, the State would not fund such projects in the future because they did not want to have a backlog of projects waiting in queue if and when SRF monies become available; and 2) the analysis of what facilities needed to be included in the first phase in order to have an impact on improving the quality of effluent indicated that as much as \$24 million would need to be spent on the first construction phase. Realizing that the remaining \$8.5 million project could then potentially cost much more to complete as a separate project, staff concluded that there was no efficient way to divide the project into two parts.

As noted above, the project plans, specifications, and estimates are at the 95 percent completion stage, which means the City now has a tangible product that, when constructed, will result in reliable wastewater treatment to meet the City's current and future needs. It would not be in the City's best interest to delay construction of these improvements. However, in order to proceed, the City will need to secure funding through conventional financing. Staff is currently preparing an analysis of the amount that will need to be financed and the resulting potential impact on sewer rates. Staff expects to return to the City Council early in Spring 2004 to request authorization to issue sewer revenue bonds in an amount not to exceed \$33 million, the same amount that Council had earlier authorized for SRF borrowing.

## **Project Design Costs:**

The City's agreement with Brown and Caldwell for preparation of plans, specifications, and estimates was developed based on the City's and the consultant's conceptual understanding of the project as described in the WPCF Master Plan. The consultant estimated that the level of effort needed to complete the design of the project, as envisioned at that time, prepare an operations manual, and provide engineering services during construction would cost \$3.4 million, including \$400,000 for additional services. However, due to several factors, the consultant underestimated the number of hours that would be dedicated to this project, resulting in the need for additional funding to satisfactorily complete the design and specifications.

When Brown and Caldwell submitted a proposal for the design of the WPCF Improvement Project, the estimated construction cost for the project was \$21.6 million. The proposed fee for design services, not including additional services, was about \$3 million, or 14% of the then estimated construction cost. Estimates for design are typically based in part on anticipated construction costs. The proposal included services to fulfill CEQA requirements, prepare an operations manual and provide engineering services during construction. Brown and Caldwell's proposed fee was considered to be within the acceptable range for the ratio of design to construction costs, especially given the complexity of designing new processes and integrating them with existing facilities. The consultants did not have a clear picture of the effort that would be required to integrate existing and new treatment processes and to work within the physical constraints of the WPCF site. As the complexities of such an undertaking became clear in the Spring of 2003, the estimated construction costs were increased to about \$32.5 million, along with attendant design costs. Increases have been driven principally by electrical power distribution, emergency power provisions, and an early lack of appreciation for the complexity of construction in and around existing facilities. The estimated construction cost has remained essentially the same for the past year.

During design it became apparent that significant changes were needed to completely revamp electrical power distribution and process controls (upgrading from 480V to 12KV). Originally Brown and Caldwell contemplated needing to provide only limited power distribution design as it was assumed that the improvements related to the Russell City Energy Center (RCEC) would be in place and would provide the bulk of distribution design. However, construction of the RCEC has not yet started. Also, it became apparent that the electrical system originally envisioned in the Master Plan would be inadequate and that a more powerful system would be needed to serve the facility and provide sufficient emergency backup power.

Changes were also made to the scope of the project as a result of internal reviews and discussion by City staff. As an example, staff made a decision during the design process to utilize gravity belt thickeners to concentrate solids, rather than dissolved air floatation, which is less versatile and requires more space and electrical power to operate.

Along with the types of engineering changes described, and due to the postponement of the RCEC, the City reached a decision to construct all of the improvements as a single project to improve construction cost efficiency. This resulted, however, in additional design costs to combine the two projects into one. The Phase I project was originally envisioned as a two-part project (Phase IA and Phase IB), the first part consisting of the two new final clarifiers to be constructed on an expedited schedule to accommodate wastewater treatment needs of the RCEC.

The second part, including the trickling filter, solids contact tanks, and sludge thickening facilities, was to be constructed the following year. These two projects have now been essentially combined into one.

### **Reasonableness of Design Costs**

Staff has determined that an increase in funding for design is appropriate. One measure of design effort is the number of drawing sheet produced. A higher-than-originally-anticipated number of drawing sheets have been produced for this project. The consultant had initially envisioned 278 drawing sheets; however, the final set of plans includes close to 500 drawing sheets, an increase of 77%.

Brown and Caldwell has provided the City with an accounting of the additional work that was performed to complete the plans, specifications and estimates and have requested payment of \$1,742,500 above the \$3,400,000 authorized in the agreement, based on the actual design cost and anticipated required services during construction. After extensive discussions with Brown and Caldwell, staff agrees that most, but not all, of the proposed additional costs are reasonable. Recognizing that some of the work was needed and could not have been reduced through more diligence and efficiency by the design team, staff believes that the not-to-exceed amount of the agreement should be increased by \$1,226,000 to a total of \$4,626,000. It is anticipated that, due to the higher number of drawing sheets and more complex project, more effort than originally expected will be required of Brown and Caldwell to provide engineering services during construction and to prepare a thorough operations manual. Therefore, included in this amount are appropriate increases for these services. Within the next few weeks, staff intends to bring to the City Council a recommendation that the agreement with Brown and Caldwell be adjusted to provide for the payment of this additional amount.

### **Contractor Prequalification**

As part of the City's contract with Consolidated Construction Management for construction services, this firm will prequalify potential prime construction contractors and electrical subcontractors. This service enables the City to eliminate from the bidding process contractors who have little or no applicable experience with such a complex and wide-ranging project.

### **Project Labor Agreement:**

Staff has been contacted by the Alameda County Building and Construction Trades Council with regard to the use of project labor agreements. It may be that use of a project labor agreement is appropriate for a project of this type, magnitude and significance. Before presenting a recommendation to the Council, however, staff is researching the implications of this request. Staff anticipates being able to address the issue more fully at the time that Council is requested to authorize the call for bids.

**Project Schedule:**

The following table provides the City Council with an updated schedule for the WPCF Improvement project:

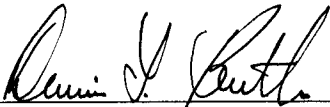
Approve plans and specifications and call for bids	March 2004
Approve financing	May 2004
Award construction contract	July 2004
Begin construction	September 2004
Complete construction	July 2006

Prepared by:



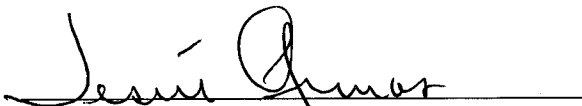
Alex Ameri, Deputy Director of Public Works/Utilities

Recommended by:



Dennis L. Butler, Director of Public Works

Approved by:

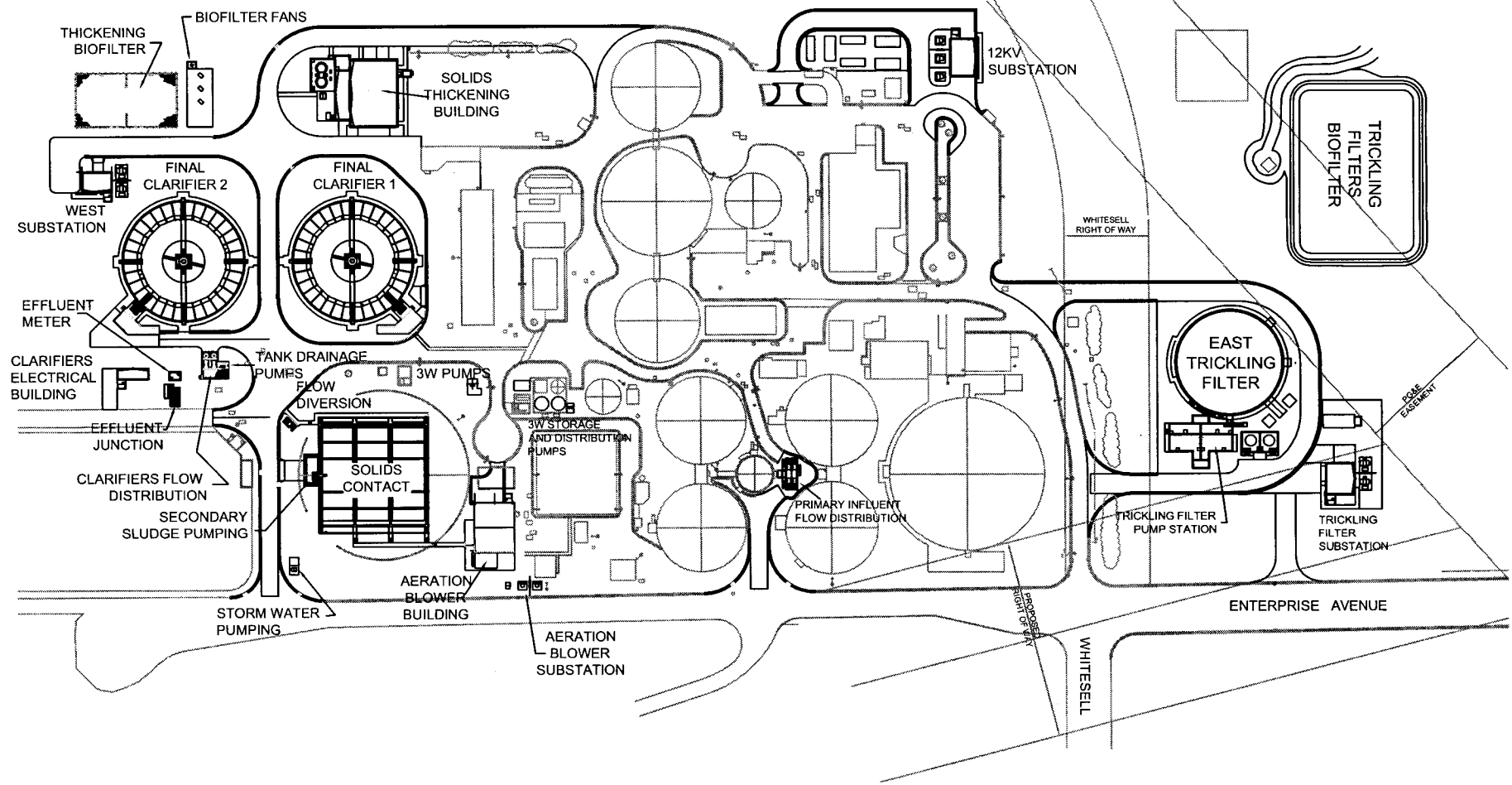


Jesús Armas, City Manager

Exhibit: A. Overview of WPCF Improvements

PROJECT PLAN

EXHIBIT 'A'





HAYWARD CITY COUNCIL

NA  
1/13/04

RESOLUTION NO. \_\_\_\_\_

Introduced by Council Member \_\_\_\_\_

RESOLUTION AUTHORIZING THE CITY MANAGER  
TO EXECUTE AN AMENDMENT TO AGREEMENT  
WITH BROWN AND CALDWELL TO INCREASE THE  
AMOUNT OF THE CONTRACT FOR PHASE I OF THE  
WATER POLLUTION CONTROL IMPROVEMENT  
PROJECT,

BE IT RESOLVED by the City Council of the City of Hayward that the  
City Manager is hereby authorized and directed to execute on behalf of the City of  
Hayward an amendment to agreement with Brown and Caldwell to increase the total  
contract amount from \$3,400,000 to \$4,626,000 for Phase I of the Water Pollution  
Control Improvement Project.

IN COUNCIL, HAYWARD, CALIFORNIA \_\_\_\_\_, 2004

ADOPTED BY THE FOLLOWING VOTE:

AYES: COUNCIL MEMBERS:  
MAYOR:

NOES: COUNCIL MEMBERS:

ABSTAIN: COUNCIL MEMBERS:

ABSENT: COUNCIL MEMBERS:

ATTEST: \_\_\_\_\_  
City Clerk of the City of Hayward

APPROVED AS TO FORM:

\_\_\_\_\_  
City Attorney of the City of Hayward